

Department of the Navy Recognizes Top Innovators



By DON Innovation

The Department of the Navy's top innovators were recognized by Mr. Thomas P. Dee, performing the duties of the Under Secretary of the Navy, on June 05 at the Pentagon Hall of Heroes. Each winner received a unique SECNAV innovation trophy designed by Ms. Charrelle S. Johnson at Naval Air Systems Command, NAS Patuxent River, MD.



Innovation Leadership

Next Generation Logistics Innovation Cell
Headquarters Marine Corps, Installations and Logistics



The Next Generation Logistics (NexLog) Innovation Cell has accelerated the Marine Corps' incorporation of emerging technologies into logistics capabilities. NexLog's thrust areas of Additive Manufacturing, Unmanned Logistics Systems, and Smart Logistics have addressed growing gaps with innovative capabilities to provide dynamic combat service support to the future Marine Corps.

NexLog uses innovative approaches not seen before in the DoD. As a result, it has positioned the Marine Corps as the preeminent service in the integration of Additive Manufacturing into military operations. Furthermore, Unmanned Logistics Systems is developing the concepts making the autonomous delivery of materiel throughout the battlespace a reality. Smart Logistics promotes the development of holistic systems which will weaponize data, providing logisticians with a dynamic decision-making tool and commanders with instantaneous information which will help them understand their units' requirements as never before.

NexLog was founded to permit warfighters to exploit the opportunities granted by emerging technologies. It is bolstered by high levels of collaboration across the DoD, academia, and industry. NexLog's successes exemplify the potential for speeding logistics while revolutionizing the methods and pace of capability development across the DoD.

Team Members Include: LtCol Howard K. Marotto, Capt Lamontie A. James, Capt Alexander A. Morrow, Capt Christopher J. Wood, Mr. Carmine J. Borrelli, Mr. Dana Sanford, Mr. Andrew R. Schaffer, Mr. Andrew J. Trout, Mr. Cesar A. Valdesuso, Mr. Timothy J. Bailey, Ms. Allison L. Gervasio, Mr. Tom Heffern, Dr. Joe Mickiewicz, Ms. Kaitlyn R. Penry, and Ms. Sally S. Scudder.

Innovation Catalyst

Mr. Stephen O'Grady
Naval Undersea Warfare Center Division, Newport



Mr. O'Grady has dedicated his career to the DoD science and technology, submarine combat system, and acquisition communities through sound engineering, creative thinking, and collaboration to solve design challenges. A technical champion, he has led many initiatives

providing the framework for innovative thinking across the workforce. Most recently, Mr. O’Grady led the creation, establishment, and execution of the Rapid Innovation Center to unleash both individual and collective talent, and solve the most challenging problems facing the Navy’s submarine and surface fleet. He planned, organized, and led innovation events to bring engineering discipline to the generation, assessment, and implementation of new ideas and solutions.

Mr. O’ Grady is also a key spokesman with external stakeholders, conveying concepts, implementation, successes to date, and future plans. His events have generated original ideas which are transitioning to programs of record for the fleet, or being further refined through Navy strategic investment. Generations of engineers are collaborating, both explicitly and implicitly transferring knowledge, which will reduce the loss of intellectual capital as an aging workforce approaches retirement. Most importantly, these events are cultivating relationships across the Navy and the DoD which will foster richer collaborations and diversity of thought.

Data Analytics

CTN1 Forrest N. Perez

Navy Information Operations Command Hawaii



Off-the-shelf systems proved inadequate for the demand of Cyber Protection Teams (CPTs) operating under United States Cyber Command to identify advanced threats on the Department of Defense Information Network. CTN1 Perez’s development of the Cyber Tactical Assessment Kit (C-TAK) resulted in an advanced analytic capability, empowering Navy CPTs to effectively monitor high-throughput networks. C-TAK uses custom scripts and graphical dashboards to aggregate network data streams, carve out critical information, and visualize high volume, rapidly changing threats in real time.

The Navy adopted C-TAK as its standard network analysis system and all CPTs have since been equipped with this innovative warfighting capability. Its real-time network data analytics reduced the time needed to train new analysts from an average of four months to less than one. Furthermore, analysts using C-TAK are able to detect more covert malicious activity than was possible using earlier systems.

Technology Development

Mr. Ryan B. Hoffman
Office of Naval Research



Under leadership of Mr. Hoffman, the Office of Naval Research (ONR) initiated a program to evaluate a novel concept for interdicting the small boats which represent asymmetric threats to Navy surface combatants. Engagement with these systems offers numerous advantages to the fleet, including non-kinetic, non-lethal solutions that enable layered defense and improved escalation-of-force options when rules of engagement are restrictive.

ONR staff formed a team from across the Naval Research Laboratory, Navy Warfare Centers, and Department of Defense agencies, bringing together both the financial resources and the technical skills to further explore and validate the concept. The team conducted a series of laboratory tests subjecting representative “threat” vessels to various effects. The results showed conclusively that the concept was viable and could provide a new and needed capability. Subsequently, ONR coordinated with Navy acquisition organizations and Industry to develop the concept into a format that could be evaluated as part of a Fleet Experiment (FLEX) involving an active surface combatant. The FLEX event proved the system’s military value and, as a result, the Navy is currently rapidly transitioning this new capability to the fleet.

Automated Process Development

3D Ship Scanning for Shipboard Configuration Management Team
Space and Naval Warfare Systems Command



Utilizing commercial off-the-shelf technology, the 3D Ship Scanning for Use in Shipboard Configuration Management Team created accurate 3D representations of three operational ships scheduled for upcoming equipment installations. The team’s innovative approach has the potential to disrupt the current overhead cost of ship installations and will improve initial offerings and eliminate costly mistakes in the creation and utilization of technical drawings throughout that process.

The ship scan data is currently being used by shipyards to ensure the creation of more accurate 2D documentation, and by the SPAWAR Fleet Readiness Department to ensure validity and verification of the Ships Information Document. LT Greunke’s team’s novel approach to the ship installation process has the potential to save millions of dollars and provide more accurate ship representations to accelerate and streamline delivery of assets to the fleet, all while improving the use of DON information.

The 3D Ship Scanning for Use in Shipboard Configuration Management Team exemplifies the innovative spirit, bringing together a multitude of competencies to provide better capability to SPAWAR and the worldwide fleet.

Team Members Include: LT Clay Greunke, Ms. Heidi Buck, LT Jessica Fuller, Dr. Mark Bilinski, and Mr. Stephen Cox.

Innovation Scholar (PME)

LT Andrea M. Logan

The Judge Advocate General's Legal Center and School



As unmanned maritime systems (UMS) technology evolves and armed unmanned vehicles are developed, strategic considerations will weigh in favor of employing UMS as warships. Inherently, auxiliary vessels can only conduct attacks in international armed conflict in self-defense. To address this constraint, LT Logan developed a thesis recommending a “use-based” test to inform U.S. Navy decisions designating a particular unmanned vehicle as a warship, auxiliary, weapon, or mine. She contends the size, autonomy, payload, independent (rather than component) nature of employment, and intended purpose of a UMS are factors to consider before granting a particular surface or undersea vehicle warship status. For example, a larger armed, remotely-controlled vessel deployed for offensive operations independently from another warship, is a better candidate for designation than an autonomous UUV employed as a component of a warship.

Applying a Navy human-machine teaming model, LT Logan’s paper argues that operators or programmers should be able to respond in unit self-defense (during an attack against a UMS that is part of a warship) or obtain supplemental rules of engagement to authorize the use of force (if there is an attack against a designated UMS). As more UMS operate in the world’s oceans, LT Logan’s scholarly work makes the case for adopting an approach to their use which treats unmanned maritime systems similarly to manned systems.

Innovation Scholar (Midshipmen)

Autonomous Mobile On-orbit Diagnostic System Team
United States Naval Academy



The team's paper summarizes the Autonomous Mobile On-Orbit Diagnostic System (AMODS) and its potential to create a paradigm shift in space operations. It details the considerations and required capabilities to guide the design of the BRICSat transfer vehicle and the robotic manipulators and end-effectors on RSat.

The goal of the AMODS is to use a small platform to provide a conventional satellite with cost effective on-orbit assessment and repairs. AMODS, which will service both new and legacy spacecraft, is comprised of: 1) several repair CubeSat-class satellites (RSats) with manipulable arms to latch onto and locomote around a host satellite; and 2) one self-propelled transport CubeSat (BRICSat) designed to successively deliver multiple RSats to their respective host spacecraft on-orbit.

AMODS will be validated in three phases. Phase one focuses on propulsive and proximity operations of the BRICSat vehicle and includes the launch of BRICSat-P in 2015 and BRICSat-D in 2017. Phase two, the 2017 launch of the prototype repair unit, RSat-P, will validate the on-orbit effectiveness of compact robotic manipulators. The follow-on launches will continue to improve performance of both satellites, demonstrating key capabilities to make the AMODS vision a reality.

Team Members Include: MIDN 1/C Edward Hanlon, IDN 1/C Benjamin Keegan, MIDN 1/C Morgan Lange, MIDN 2/C Jacob Pittman, MIDN 3/C Dakota Wenberg, and MIDN 3/C Gavin Roser.

Enlisted Innovator

MSgt Brantley E. Friend
Marine Air Control Group 18



Recognizing the challenges Marines consistently face on liberty in Okinawa and understanding the geopolitical implications of incidents, MSgt Friend created, empowered, and led a Marine Air Control Group 18 team to design and build the revolutionary "Operation Liberty" mobile application. This application enabled both Marines and commanders on Okinawa to be safer and more productive in their liberty while deployed there. This innovation won the First Annual Marine Corps Mobile Application Challenge.

The application gives organizations a convenient method to deliver information on a device most Marines already have in their pocket. The application provides simplified on/off base information, notification alerts if a user's liberty is about to expire, a list of off-limits establishments, mass notifications for disaster or command alerts, live weather updates including sea conditions and typhoon warnings, and direct dialing to taxi or other driving services, emergency services, sexual assault hotline, and command representatives.

MSgt Friend's dedication to his Marines is exemplary. He gave them the time and environment for their work, ensured his junior Marines had ample opportunity to brief Generals and Commanders, and created a mobile application with the sole purpose of protecting and supporting his Marines.

Outside the Box

Mr. Derrick A. Thomas

Naval Computer & Telecommunications Station Naples, Italy



Mr. Thomas devised an innovative solution to resolve a failing message delivery circuit, using existing Circuit-to-Packet (CTP) transport. The existing circuit connected through three different telecommunications providers and employed antiquated Codex modems at each end which operated beyond their anticipated end-of-life.

Mr. Thomas was able to devise the CTP path configuration specifications, write a plan to test the circuit to the stringent requirements, and vet the approval package through multiple Combatant Commanders to the Joint System Engineering and Integration Office for final approval. Approval of CTP for message delivery will increase the reliability and resiliency of the architecture and save the Navy monthly commercial circuit leasing costs.

Trophy Design Contest

Ms. Charrelle S. Johnson

Naval Air Systems Command



Again, join us saying BZ to these Department of the Navy innovators!